TUUA Vacuum Jacketed Flex Hose and Vacuum Jacketed Pipe
Questions and Answers

1) The following sheets are blank in the isometric drawings; sheet 8 of 242F1800006, sheet 6 of 242F1800008 and sheet 4 of 504F0700001. Is this correct?

Answer:
These pages are not intended to be blank. Within the released "Statement of Work Better Resolution" under amendment 0001, each page identified (Isometric drawing 242F1800006 sheet 8, 242F1800008 sheet 6 and 504F0700001 sheet 4) has notes in the upper left hand corner of the page. Please notify us if your electronic PDF version of these sheets has notes that are unreadable.

2) Some of the tables in the SOW and some of the isometric drawings have fittings with part number or drawing numbers that begin with AS, for example AS4326K12. Where do we find information on these?

Answer:
The AS and SAE fittings were not specifically mentioned in the SOW. However, the part numbers listed in SOW isometric drawings for ports are readily available on the Wide World Web. An internet search will produce the National Stock Number (NSN) and pricing. The AS fittings are covered by SAE International standards. For more information see the following link: http://www.sae.org/servlets/index

3) The pressure ports and thermo well ports on the isometric drawings are not defined as to size or connection. Where do we find that information?

Answer:
The ports will be AS5202 type (MS33649 Boss Fitting). The exact size (1/4 to 1 inch, but in no case greater than line main branch run size) are to be determined during until approved at shop drawing design reviews.

4) Is the supplier responsible for taking field dimensions of the flex hose assemblies and piping system?

Answer:
No. Field dimensions are not listed as a requirement in the SOW or Specifications. The flex hoses and pipe shall be bid to the isometric drawings / table lengths provided in the SOW, reference SOW section 3.1 General and Specification 890M310003 section 3.2.2.2 Reference Isometric drawings 242F1800006 and 504F0700001 for geometry of Flex Hoses. Isometric drawings will be provided with more precise dimensions within dimensional limits shown after contract award. The final fabrication dimensions will be approved by NASA with the 90% shop

drawing submittals (the fabrication contractor will not be responsible for any field measurements).

5) Will the location and types of external supports be given for use in the analysis or do we design those?

Answer:
NASA will provide the preliminary supports type and location during the 45% and 90% design review for Contractor analysis, reference SOW Section 3.1 General. The support structure is available on approximately 10 foot intervals through the Tilt-Up arm. The supplier is required to provide stress analysis meeting ASME B31.3 code per SOW section 3.5.4 Stress Analysis Report. The forward flexible hoses shall be supported only at its front and rear attached points. The after flexible hose shall be uniformly supported over its entire length by a mechanical hose carrier chain device similar to picture below.

6) Our company normally ships vacuum jacketed pipe on dedicated flat bed trucks. The pipe is saddled and secure to the bed but not in separate crates or containers. Would that be acceptable? (Any shipment made by motor freight would be containerized).

Answer:
No, the pipes and flexible hoses shall be individually protected / containerized per technical specifications, reference section 5.2 Packing.

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7) Do we need to use a NASA approved cleaning contractor as well as an approved procedure?

Answer:
Cleaning procedures shall meet specification KSC-C-123. The supplier's procedure, including facilities, personnel training, and equipment shall be approved by NASA. This cleaning procedure approval by NASA will ensure that a particular cleaning subcontractor or supplier is certified to KSC –C-123 for performing this specific cleaning function. Alternatively the main contractor may select a pre-certified KSC-C-123 cleaning subcontractor.

8) Does the x-ray film and reader sheets for the longitudinal seam of the outer bellows of pipe and inner and outer flex hose need to be submitted and approved prior to forming the convolutions? If so, how long will the approval cycle take?

Answer:
No, vendor certified inspector shall review X-rays to ASME severe cyclic code criteria prior to convolute forming and radiographs retained for record. NASA certified inspector may review the X-rays at any time (including after the forming process has started) but will not delay the manufacture of flex hoses. See SOW 3.4.4 for Mandatory Inspection Points which would require advance notification as specified.

9) Our company manufactures and stocks bayonets in the sizes specified on the isometric drawings. The stock bayonets are manufactured with certified Page 2 of 2 materials with certified material test reports (CTMR). However the CMTR's are traceable to a manufacturing "run" and not individual bayonets would this type of traceability be acceptable?

Answer:
Yes, as long as the individual bayonet is traceable to the material batch CMTR.

10) Would the bayonets be required to be made of 316/316L dual grade materials?

Answer:
Yes, Flanges shall be per B16.5 and shall be ASTM A182 F316/F316L (*dual graded*) stainless steel, reference technical specification 890M3100003 sections 3.2.2.5, 3.2.2.10, 3.2.2.11 and 3.2.2.19. Flange styles and pressure classes are indicated on isometric drawings. All serrations on raised face flanges shall be concentric.

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11) Is the supplier required to provide fasteners for the bayonet flanges; if so what material specification is required? Does the supplier provide fasteners for flanges specified on some of the isometric drawings; if so what material specification?

Answer:
The supplier is not required to provide the final field installation fasteners for flanges. However the supplier shall ship the bayonets with protective pressure retaining covers that may require fasteners. Additionally, the supplier shall provide bolting for required test setups.

12) Option 3 & 4 specifies soft goods kit F-18060-SGK, where do we find information on this item?

Answer:
Refer to the vendor listed on drawing 79K14672 provided in the package.